OIPE IAP87
JAN 18 2008
PATENT & TRADEMARK OFFICE

Pea Chalcone reductase DNA sequence (SEQ ID No. 1)

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121   ATCATCGAAG CCATCAAACA AGGTTACAGA CACTTTGATA CTGCTGCTGC TTATGGATCC
181   GAACAAGCTC TTGGTGAGGC TTTGAATGAG GCTATTCAAC TTGGTCTTGT CACTAGAGAA
241   CAGCTTTTTG TTACTTCTAA ACTTTGGGTT ACTGAAAATC ATCCTCACCT TGTTCTTCCT
301   GCTCTACAAA AATCTCTCAA GACTCTTCAG TTGGATTACT TGGATTTGTA TTTGATTCAT
361   TGGCCACTTA GTTCTCAGCC CGGAAAGTTT TCATTTCCAA TTGATGTGGC TGATCTATTG
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541   ACTGTTCTTC CTGCTGTTAA TCAAGTAGAG ATGAACCTTG CATGGCAACA AAAGAAGCTA
601   AGAGAATTTT GCAATGAAAA TGGAATAGTG TTGACTGCAT TTTCACCGTT GAGGAAAGGC
661   GCCAGCCGAG GAGCAAATGA GGTTATGGAG AATGATATGC TTAAACAGAT TGCAGATGCT
721   CATGGAAAGT CTATTGCACA AATTTCTCTG AGATGGTTAT ATGAACAAGG AATCACTTTT
781   GTTCCAAAGA GCTATGATAA GGAGAGAATG AGTCAAAATT TGAGAATCTT TGATTGGACA
841   CTGACAAAGG AGGATCATGA GAAAATTGAT CAAATTAAGC AGAATCGTTT GATCCCTGGA
901   CCAACCAAGC CAAGTCTCAA TGATCTTTGG GATGATGAAA TATAAG
```

Pea Chalcone reductase protein sequence (SEQ ID No. 2)

```
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Pro Val Val Gly Met Gly Ser Ala Pro Asp Phe Thr Cys Lys Lys Asp Thr Lys Glu Ala
Ile Ile Glu Ala Ile Lys Gln Gly Tyr Arg His Phe Asp Thr Ala Ala Ala Tyr Gly Ser
Glu Gln Ala Leu Gly Glu Ala Leu Asn Glu Ala Ile Gln Leu Gly Leu Val Thr Arg Glu
Gln Leu Phe Val Thr Ser Lys Leu Trp Val Thr Glu Asn His Pro His Leu Val Leu Pro
Ala Leu Gln Lys Ser Leu Lys Thr Leu Gln Leu Asp Tyr Leu Asp Leu Tyr Leu Ile His
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Lys Ala Ile Gly Val Ser Asn Phe Ser Val Lys Lys Leu Gln Lys Leu Leu Ser Val Ala
Thr Val Leu Pro Ala Val Asn Gln Val Glu Met Asn Leu Ala Trp Gln Gln Lys Lys Leu
Arg Glu Phe Cys Asn Glu Asn Gly Ile Val Leu Thr Ala Phe Ser Pro Leu Arg Lys Gly
Ala Ser Arg Gly Ala Asn Glu Val Met Glu Asn Asp Met Leu Lys Gln Ile Ala Asp Ala
His Gly Lys Ser Ile Ala Gln Ile Ser Leu Arg Trp Leu Tyr Glu Gln Gly Ile Thr Phe
Val Pro Lys Ser Tyr Asp Lys Glu Arg Met Ser Gln Asn Leu Arg Ile Phe Asp Trp Thr
Leu Thr Lys Glu Asp His Glu Lys Ile Asp Gln Ile Lys Gln Asn Arg Leu Ile Pro Gly
Pro Thr Lys Pro Ser Leu Asn Asp Leu Trp Asp Asp Glu Ile
```

Fig. 1

Soy isoflavone synthase DNA sequence (SEQ ID No. 3)

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121   CGTCTTCCCT TCATAGGACA CCTTCATCTC TTAAAAGACA AACTTCTCCA CTACGCACTC
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241   GTTGTTGCCT CCACACCAGA ATTGTTCAAG CTCTTCCTCC AAACGCACGA GGCAACTTCC
301   TTCAACACAA GGTTCCAAAC CTCAGCCATA AGACGCCTCA CCTATGATAG CTCAGTGGCA
361   ATGGTTCCCT TCGGGCCCTA CTGGAAGTTC GTGAGGAAGC TCATCATGAA CGACCTTCTC
421   AACGCCACCA CTGTAAACAA GTTGAGGCCT TTGAGGACCC AACAGACGCG TAAGTTCCTT
481   AGGGTTATGG CCCAAGGCGC AGAGGCACAG AAGCCCCTTG ACTTGACCGA GGAGCTTCTG
541   AAATGGACCA ACAGCACCAT CTCCATGATG ATGCTCGGCG AGGCTGAGGA GATCAGAGAC
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721   GACCCTGTCG TTGAAAGGGT CATCAAGAAG CGCCGTGAGA TCGTGAGGAG GAGAAAGAAC
781   GGAGAGGTTG TTGAGGGTGA GGTCAGCGGG GTTTTCCTTG ACACTTTGCT CGAGTTCGCT
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1201  GGAAGAGACC CCAAATACTG GGACAGACCA TCGGAGTTCC GTCCTGAGAG GTTCCTAGAG
1261  ACAGGGGCTG AAGGGGAAGC AGGGCCTCTT GATCTTAGGG GACAACATTT TCAACTTCTC
1321  CCATTTGGGT CTGGGAGGAG AATGTGCCCT GGAGTCAATC TGGCTACTTC GGGAATGGCA
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Soy isoflavone synthase protein sequence (SEQ ID No. 4)

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Ser Pro Lys Pro Arg Leu Pro Phe Ile Gly His Leu His Leu Leu Lys Asp Lys
Leu Leu His Tyr Ala Leu Ile Asp Leu Ser Lys Lys His Gly Pro Leu Phe Ser
Leu Tyr Phe Gly Ser Met Pro Thr Val Val Ala Ser Thr Pro Glu Leu Phe Lys
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Tyr Trp Lys Phe Val Arg Lys Leu Ile Met Asn Asp Leu Leu Asn Ala Thr Thr
Val Asn Lys Leu Arg Pro Leu Arg Thr Gln Gln Thr Arg Lys Phe Leu Arg Val
Met Ala Gln Gly Ala Glu Ala Gln Lys Pro Leu Asp Leu Thr Glu Glu Leu Leu
Lys Trp Thr Asn Ser Thr Ile Ser Met Met Met Leu Gly Glu Ala Glu Glu Ile
Arg Asp Ile Ala Arg Glu Val Leu Lys Ile Phe Gly Glu Tyr Ser Leu Thr Asp
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Leu Val Asp Glu Val Asp Thr Gln Asn Leu Pro Tyr Ile Arg Ala Ile Val Lys
Glu Thr Phe Arg Met His Pro Pro Leu Pro Val Val Lys Arg Lys Cys Thr Glu
Glu Cys Glu Ile Asn Gly Tyr Val Ile Pro Glu Gly Ala Leu Ile Leu Phe Asn
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Pro Glu Arg Phe Leu Glu Thr Gly Ala Glu Gly Glu Ala Gly Pro Leu Asp Leu
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Fig. 2

Lotus corniculatus chalcone isomerase DNA sequence (SEQ ID No. 5)

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121   GAGGGGAAGT TCATAAAATT CACTGGCATA GGAGTGTATT TGGAAGATAC AGCAGTGGAT
181   TCACTCGCCA CCAAGTGGAA GGGTAAGAGT TCACAAGAGC TGCAGGACTC CCTTGACTTC
241   TTCAGAGACA TCATTTCAAG TCCCTCTGAG AAGTTAATTC GAGGGTCCAA GCTGAGGCCA
301   TTGAGTGGCG TGGAGTATTC AAGAAAGGTG ATGGAGAATT GTGTGGCACA CATGAAGTCT
361   GCTGGAACTT ATGGTGAAGC AGAGGCCACA GCCATTGAAA AATTTGCAGA AGCCTTCAGG
421   AAGGTGGATT TTCCACCAGG TTCCTCTGTT TTCTACCGAC AATCAACAGA TGGAAAATTA
481   GGGCTTAGTT TCTCTTTGGA TGACACGATA CCAGAAGAAG AGGCTGTAGT TATAGAGAAC
541   AAGGCACTCT CAGAGGCAGT GTTAGAGACC ATGATTGGCG AGCATGCTGT TTCCCCTGAT
601   TTGAAGCGTT GTTTGGCTGA AAGGTTGCCT ATTGTGATGA ACCAGGGTCT TCTCCTCACT
661   GGAAACTGAT
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Lotus corniculatus chalcone isomerase protein (SEQ ID No. 6)

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Glu Asp Thr Ala Val Asp Ser Leu Ala Thr Lys Trp Lys Gly Lys Ser Ser Gln
Glu Leu Gln Asp Ser Leu Asp Phe Phe Arg Asp Ile Ile Ser Ser Pro Ser Glu
Lys Leu Ile Arg Gly Ser Lys Leu Arg Pro Leu Ser Gly Val Glu Tyr Ser Arg
Lys Val Met Glu Asn Cys Val Ala His Met Lys Ser Ala Gly Thr Tyr Gly Glu
Ala Glu Ala Thr Ala Ile Glu Lys Phe Ala Glu Ala Phe Arg Lys Val Asp Phe
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Lys Ala Leu Ser Glu Ala Val Leu Glu Thr Met Ile Gly Glu His Ala Val Ser
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Fig. 3

ID No.	Primer	Primer Sequence (5′ to 3′)
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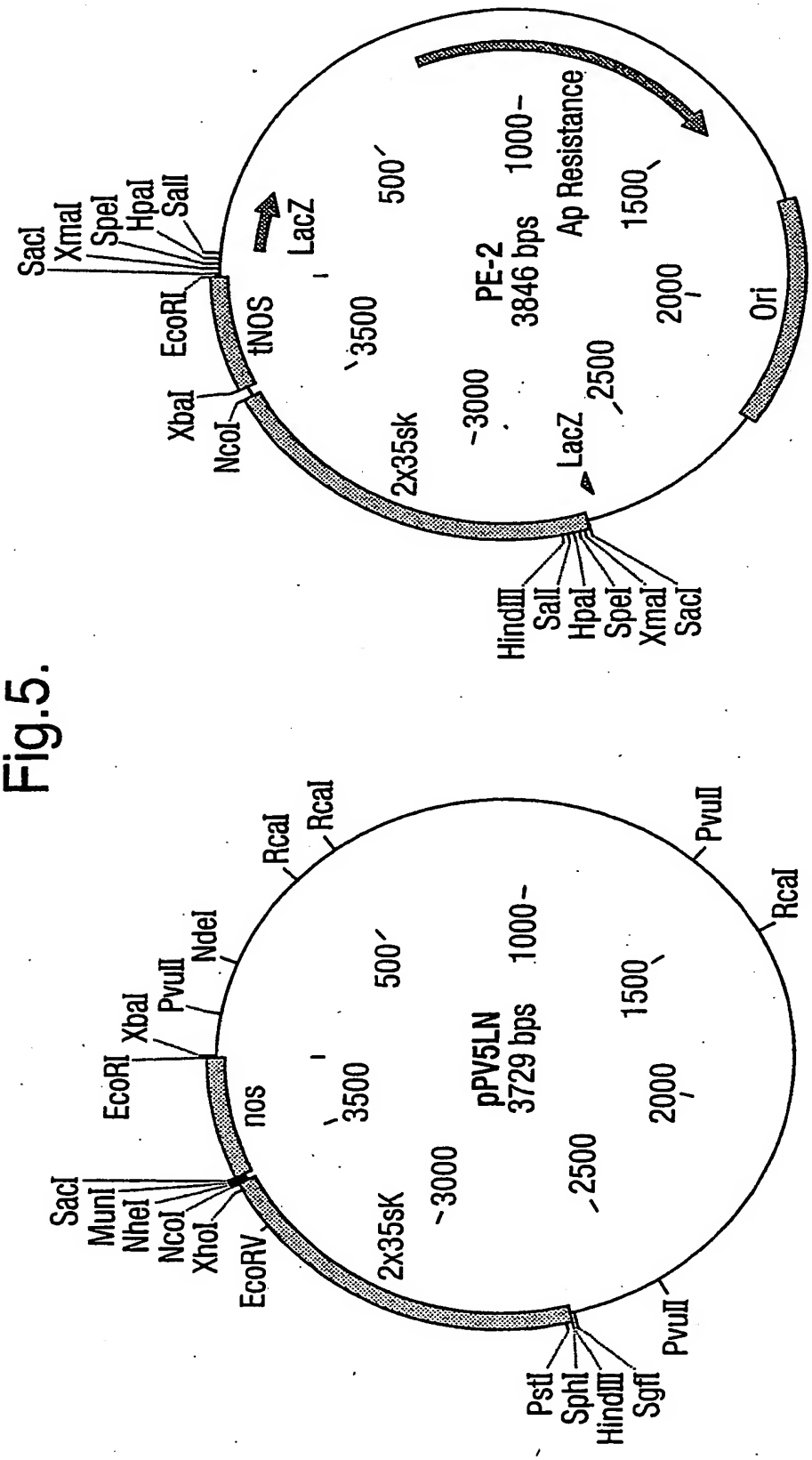
Fig. 4

Fig.5.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3500
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2500
2x35sk
LacZ
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SalI
HpaI
SpeI
XmaI
SacI
RcaI
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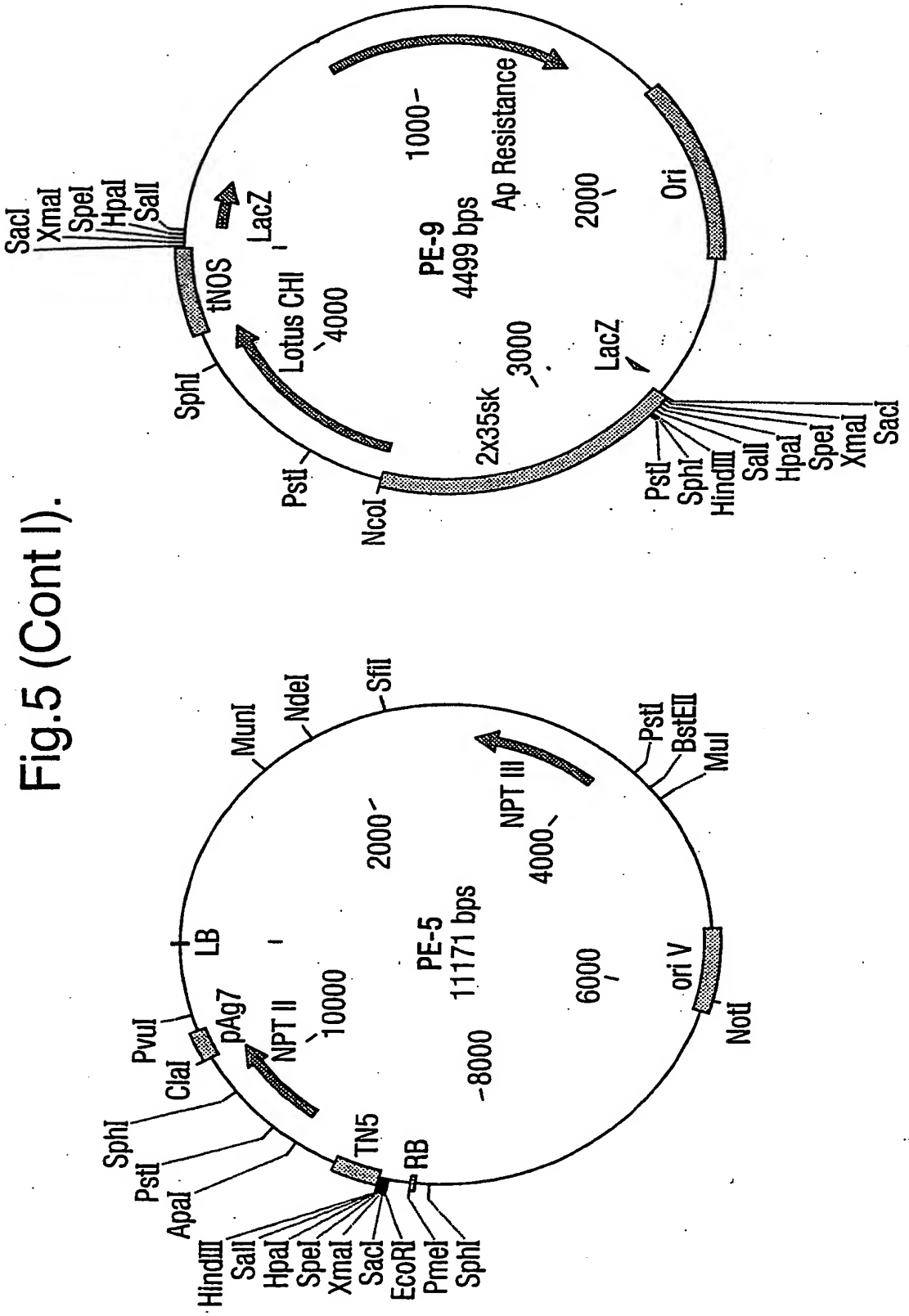
Fig.5 (Cont I).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SphI
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NcoI
PstI
SphI
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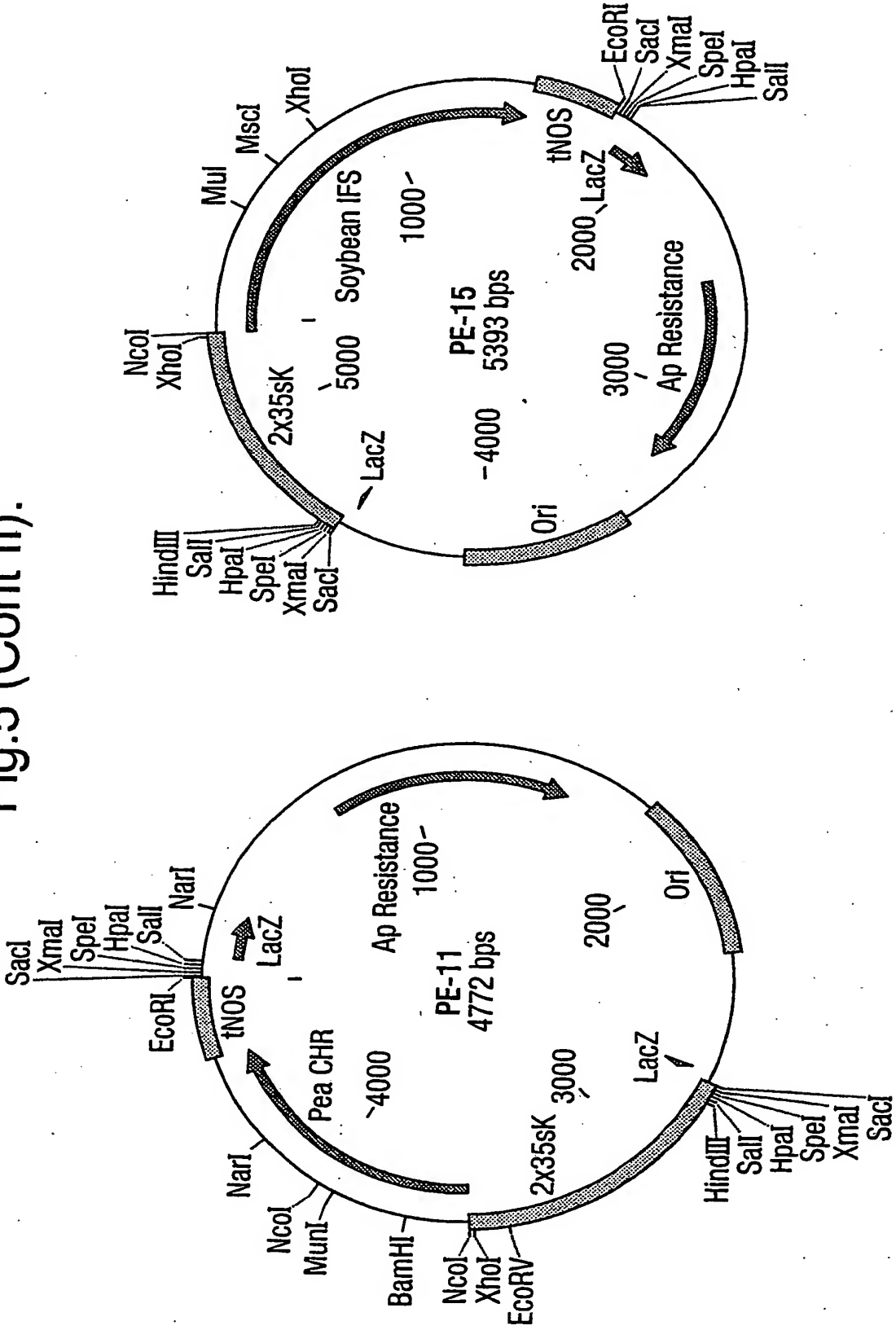
Fig.5 (Cont II).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SacI
XmaI
SpeI
HpaI
SalI
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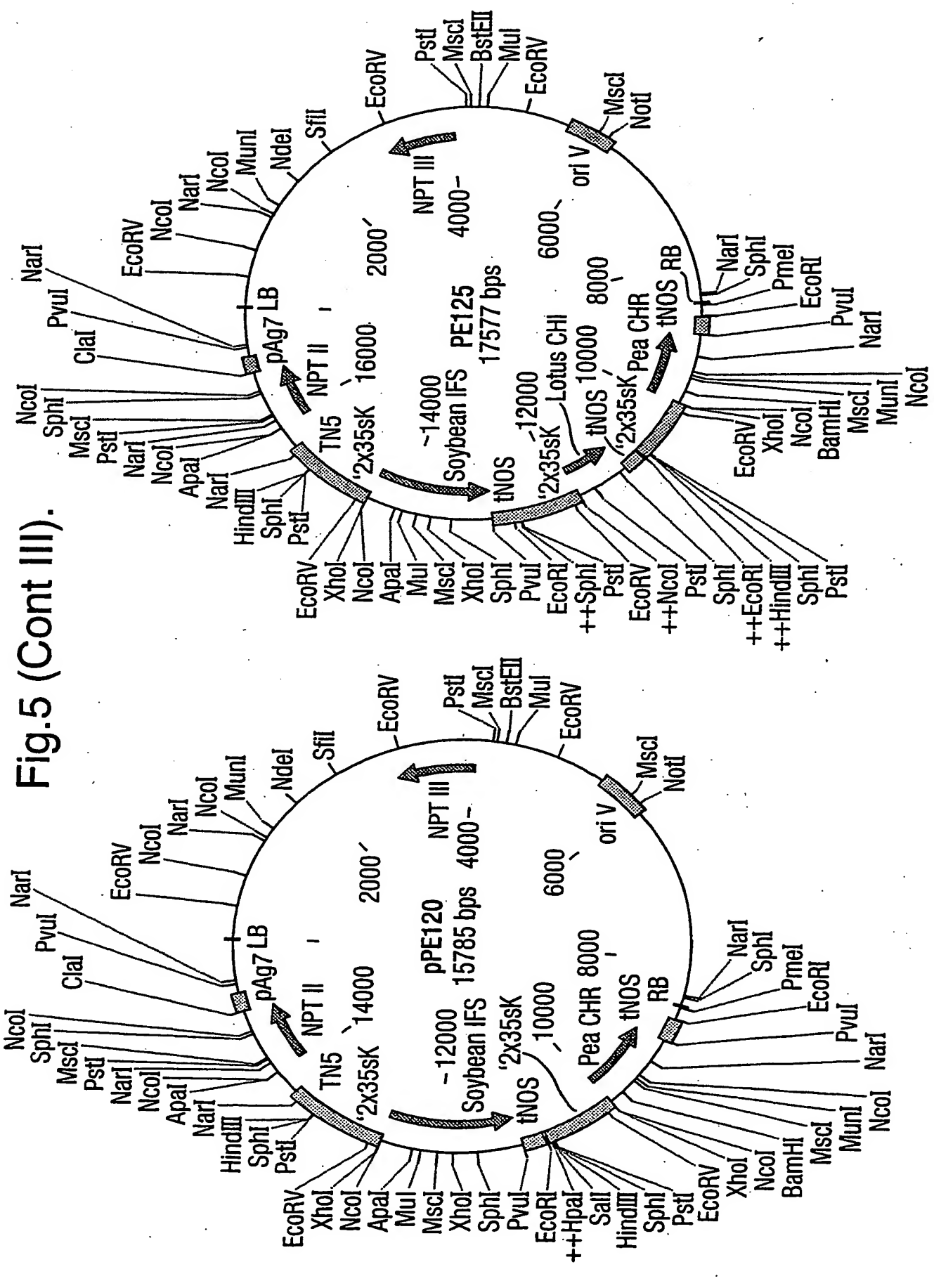
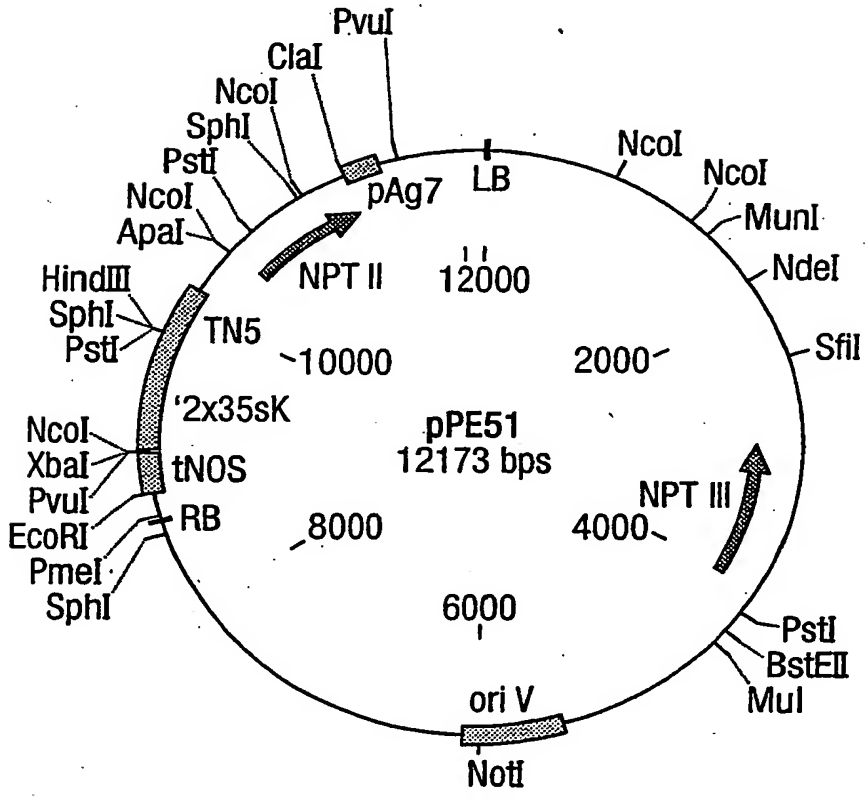


Fig.5 (Cont III).

Fig.5 (Cont IIII).



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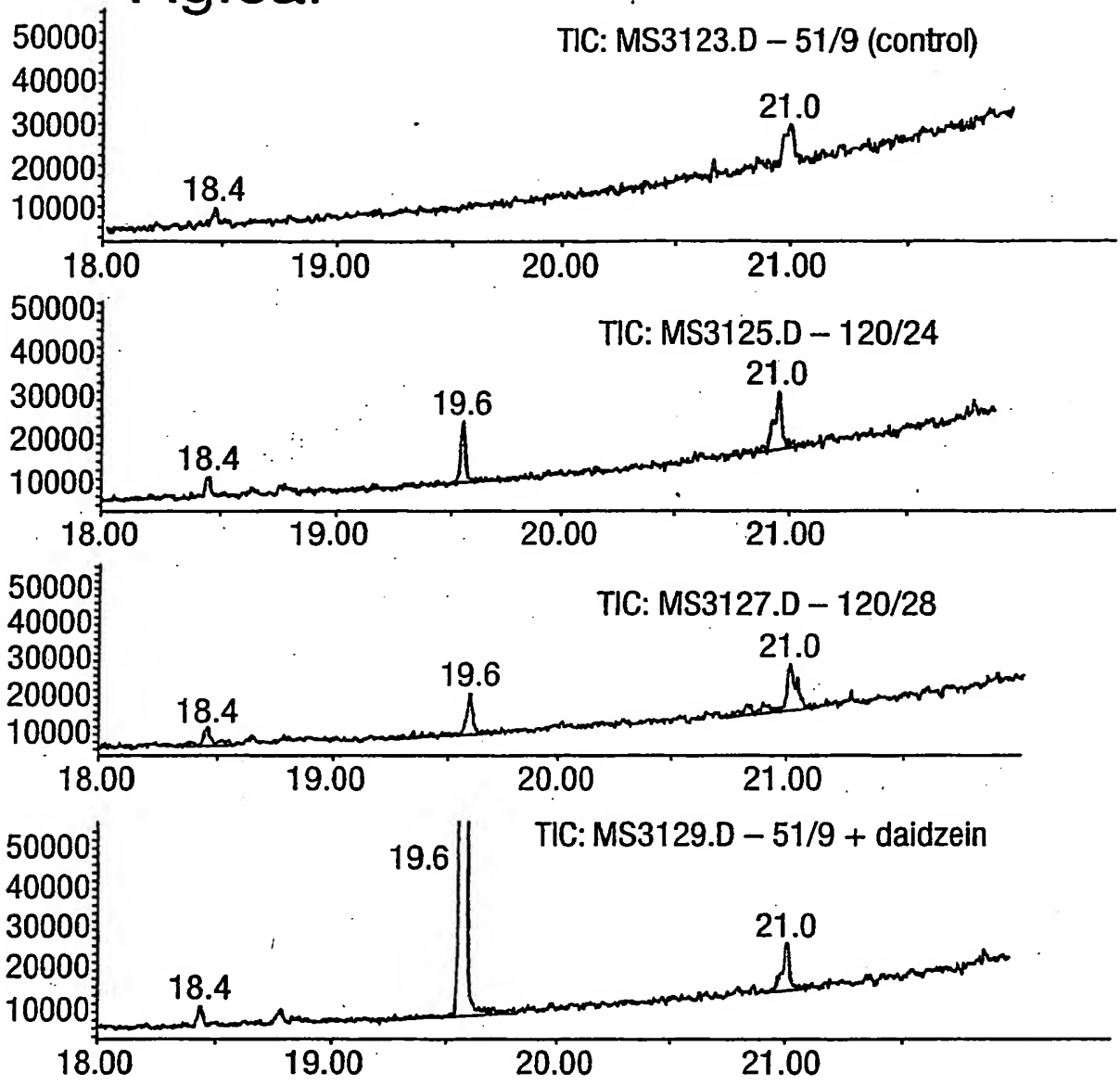
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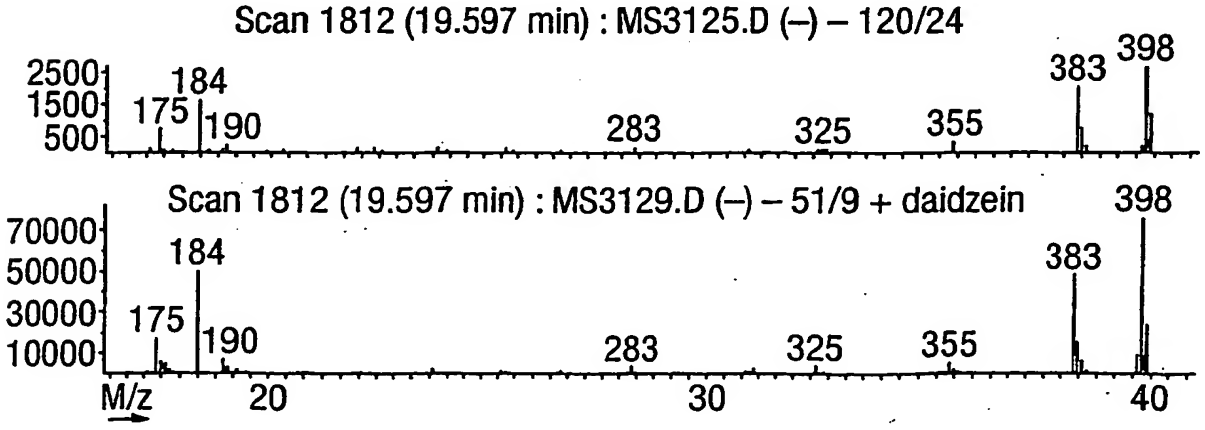
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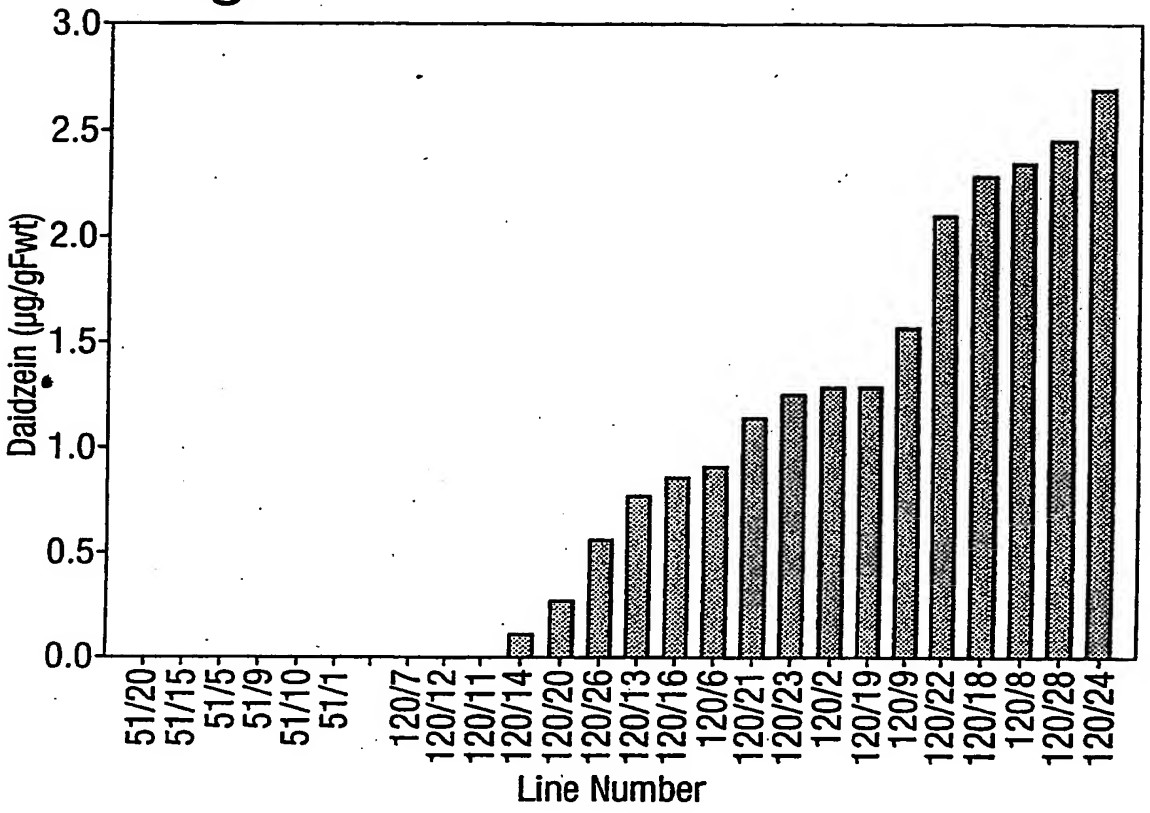
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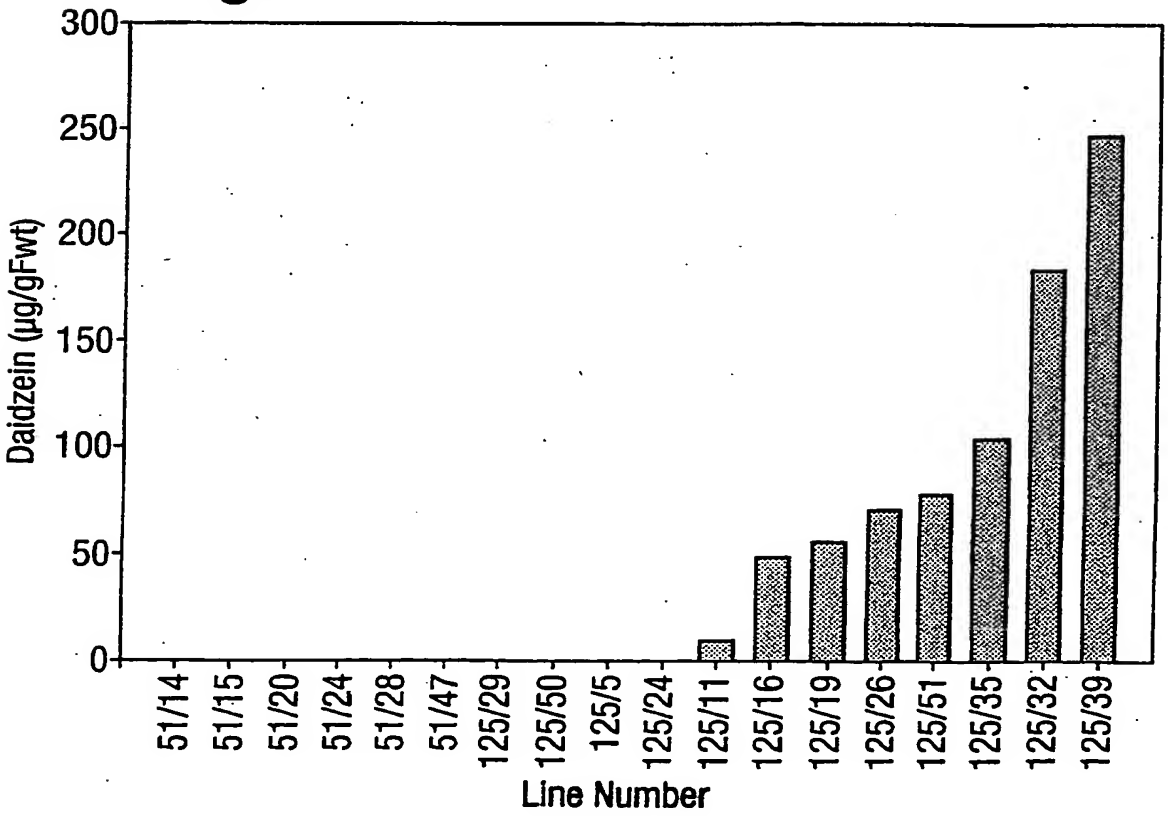
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